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(56)参考文献 特開 平2-310685 (JP, A)

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(54)【発明の名称】透光性容器に対するバーコード

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(57)【特許請求の範囲】

【請求項1】透光性材料の表面に対して通常のバーコードの反射帯に相当する領域のみを印刷し、さらにこの最初と最後の印刷帯の外側に少なくとも5mm長の反射域を印刷することを特徴とした透光性容器に対するバーコード印刷。

【請求項2】透明フィルムに対して、通常のバーコードの反射帯に相当する領域のみを印刷し、さらにこの最初と最後の印刷帯の外側に少なくとも5mm長の反射域を印刷することを特徴とした透光性容器に対するバーコード。

【発明の詳細な説明】

【0001】

【産業上の利用分野】この発明は商品の種別や規格を光学的に読み取り得るようにした所謂バーコードに関し、

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通常のバーコードを交差して設けることによって、その読み取りを縦・横二方向から行えるようにするとともに、特に通常のバーコード又は上記クロスバーコード主体が硝子やプラスチック製品のような透光性材料からなる商品の容器に使用して有効なものを提供しようとするものである。

【0002】近年、各種商品の光学的知識に広く利用されているバーコードは、下地を光の反射色とし、その下地上に国際規格に則って黒または濃紺の多数の平衡線を印刷して光の反射帯と光を吸収可能な収光帯を交互に形成したものであった。これを更に詳しく述べると、図3に例示したように通常のバーコード(イ)は、白色系の普通紙などを下地(ロ)とし、両側に一定の反射域(ニ)・(ニ)を残して収光色である黒又は濃紺の印刷インキを用いて所定の間隔、所要の太さの多数の収光帶

(ハ)を印刷することにより、その表面を例えばハンドスキャナー等で走査することによって国別・生産者・品種・品番規格等々を光学的に読み取り得るようにしたもののが広く知られている。

【0003】従って、商品の容器自体が透孔性を有する硝子やプラスチック素材から構成される場合にバーコードを適用しようとなれば、その表面に通常のバーコードを直接印刷しても、反射帯であるべき下地部分も光を透過してしまう関係上、その読み取りは不可能であった。そこで従来は、前出の図3のように所要長を有する長方形の反射性普通紙上に所定のバーコードを印刷した上、この四辺を透孔性容器の表面に貼着するか、若しくは商品容器の適当な位置に予め反射色の下地を長方形状に印刷した上、通常のバーコードを重ね刷りするという手段が用いられていたのである。

#### 【0004】

【発明が解決しようとする課題】上述したように、従来の技術によれば、主体が透孔性材料からなる容器に対してバーコードを利用する場合は、前記の理由で通常のバーコードをそのまま容器面に印刷できなかつたから、別のシートに印刷したバーコードを貼着したり、重ね刷りするという手間を要しただけでなく、商品の表面に紙片や下地色が露出するため、特に飲料など液体を収容するデザイン重視の硝子瓶やプラスチック容器に対しては、外観・デザイン上ともに好ましいものではなかつた。

#### 【0005】

【課題を解決するための手段】このような実情に鑑み、本発明者は、上述した硝子やプラスチックのような透光性材料からなる容器についてバーコードの有効な利用法を開発するべく、銳意研究を重ねてきた結果、一般に反射色の普通紙や下地上に印刷される通常のバーコードの反射帯に相当する領域のみを透光性容器の表面に直接印刷するという手段によって従来のバーコードに見られた課題を解決したものである。

【0006】又、上記反射帯に相当する領域の印刷のみからなるバーコードを予め無色若しくは透明のフィルムに印刷して、これを透光性容器の適宜な表面に貼着するという手段も用いた。

【0007】即ち、バーコードの読み取り開始位置がスキャナーに明確に読み取られるように、一定の規格に従って設計された通常のバーコードの最初と最後の収光帯の両端側に対応する位置に少なくとも5mm長の反射域を設け、透光性容器又は透明フィルムの表面に直接印刷するという手法を提供するものである。

#### 【0008】

【作用】叙述の構成に係る本発明のバーコードは透光性材料面が下地となるが、通常のバーコードにおいてより光を反射しやすい領域である反射帯のみを印刷することによって、光を反射しにくい透光性容器表面が収光帯に相当する領域となり、これまで通りのスキャナーによっ

て、そのまま光学的識別が可能であるという格別の作用を有する。又、当該バーコードの両側端に一定長の反射域を設けたことでスキャナーの読み取り開始及び終了位置が正確に識別できるという作用が得られるものである。

#### 【0009】

【実施例】以下、本発明の構成を図面に示す実施例に従って更に詳述すると、図1は本発明で開示する透光性容器に対するバーコードを、ある液体飲料を収容する黒色の硝子製容器に適用した実施例（但し、図は図面を鮮明にする必要上、白黒反転させて作成した）であつて、1は容器本体、2は該容器表面の適当な位置に添付されたバーコード、3は下地上に印刷された反射帯、又4は下地を露出（無印刷）せしめた収光帯、更に5はバーコード2の収光帯4の両端側に接して外方に設けられた少なくとも5mm長の長さを有する反射域である。

【0010】また、図2は本発明の他の実施様態を示したもので、通常無色透明のフィルム1'の一面に前記実施例と同様のバーコード2'と、その両側端に設けられる一定長の反射域3'を反射性インキで印刷し、これを透光性容器の適当な位置に貼着するか、若しくは上記透明フィルム1'を予め延伸された筒状フィルム賄して容器に嵌着し、加熱してシュリンク包装するというものである。

【0011】この場合図3は例示した通常のバーコード（イ）の白色部分が着色印刷されて反射帯3となり、反対に黒線部分が無印刷となって収光帯4となるのである。

【0012】尚、本発明のバーコード2'は上例の硝子製容器に限らず、プラスチックのような透光性材料からなる容器に絶て適用でき、又容器の色や収容物の色彩の明暗などには全く関係はない。

【0013】更に、本発明では、容器または透明フィルムに印刷されるバーコードの線の色彩も、反射性のインキであれば、その中から多くの色が自由に選択できるのである。

【0014】この他、上記本発明のバーコード2・2'の両側に付された反射域5・5または5'・5'は、その長さが3mm以下であるとスキャナーによる読み取り精度が低下するので、安全率を見て5mm前後とするのが好ましい。

#### 【0015】

【発明の効果】以上述べたように、本発明は硝子・プラスチック等透光性材料からなる商品の容器又は袋にバーコードを直接印刷するか、若しくは別途透明フィルムに印刷するに当たり、通常のバーコードの反射帯に相当する領域をそのまま印刷し、さらにこの最初と最後の印刷帯の両端側に反射域を設けて、従来のように印刷されたバーコード紙を容器面に貼着したり、或いは予め下地印刷を施した上に通常のバーコードを重ね刷りする等の

手間が省略できるだけでなく、商品の態裁並びにデザイン性を高めるうえで極めて有益な新規の発明である。

【0016】又、本発明のバーコードは、その印刷に当たっての色彩が従来のバーコードのように黒色及至は濃紺などに限定されるものではなく、透光性容器表面よりも反射性の高いインキであれば、金・銀色をはじめ赤・黄など任意の色彩が選択できるし、更にバーの長さを充分短くして全体を細長く短冊状にするなど、商品の形状・デザインに合わせたバーコードが得られるから、商品価値の向上を計るうえで極めて有効である。

【0017】更に、透明フィルムに印刷したバーコードは、これを使用する各種容器などに対し、直接印刷したものと外観上、何ら変わらない結果が得られるという特徴がある。

## \* 【図面の簡単な説明】

【図1】本発明の実施例を示す透光性硝子容器の背面図

【図2】第2実施例を示す透明フィルムに印刷されたバーコードを例示する平面図

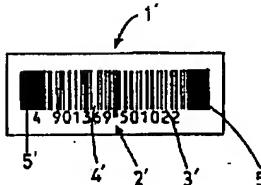
【図3】紙片に印刷された従来のバーコードを例示する平面図

## 【符号の説明】

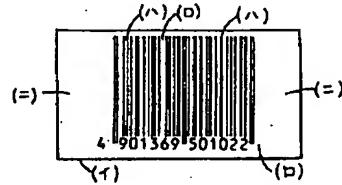
1	硝子容器
1'	透明フィルム
2 · 2'	<u>バーコード</u>
3 · 3'	反射帯
4 · 4'	吸光帯
5 · 5'	反射域

\*

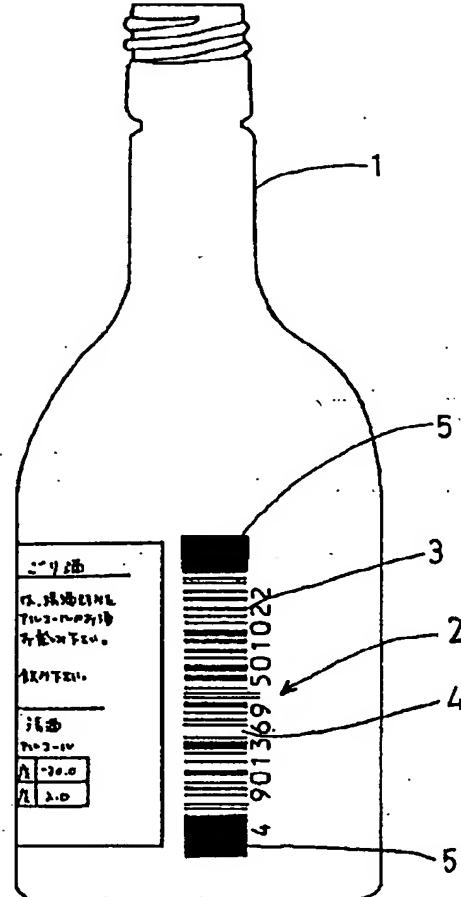
【図2】



【図3】



【図1】



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## SPECIFICATION

[Title of the invention]

BAR CODE FOR LIGHT-TRANSMITTING CONTAINER

[Abstract]

[Purpose of the Invention]

The purpose of the present invention is to enable optical identification of a product whose main body is made of a light-transmitting material such as glass, plastic and the like by using a bar code.

[Constitution of the Invention]

An inverted bar code, wherein a reflecting zone and a light-absorbing zone of a general bar code conventionally used are inverted, and at least about 5 mm of the reflecting area is provided outside the first and the last light-absorbing zones, and is directly printed onto a surface of a light-transmitting container, or printed onto a transparent film to be attached onto the surface of the light-transmitting container.

[CLAIMS]

[Claim 1] Bar code printing for a light-transmitting container, wherein a light-absorbing zone and a reflecting zone of a general bar code are inverted, at least 5 mm in length of a reflecting area is provided outside the first and the last light-absorbing zones, and such bar code is directly printed

onto a suitable surface of the light-transmitting container.

[Claim 2] A bar code for a light-transmitting container, wherein a light-absorbing zone and a reflecting zone of a general bar code are inverted, at least 5 mm in length of a reflecting area is provided outside the first and the last light-absorbing zones, and said bar code is printed on a surface of a transparent film to be attached onto a suitable surface of the light-transmitting container.

[Detailed Description of the Invention]

[0001]

[Field of Industrial Application]

The present invention relates to a so-called bar code in which a classification, a standard and the like of a product can be optically read, and the main body thereof is particularly effective when used for a product's container made of a light-transmitting material such as glass, plastic and the like.

[0002]

[Prior Art]

Regarding a bar code, which is recently being used widely for optical identification of various types of products, its base has a light-reflecting color, and a plurality of black or dark blue parallel lines are printed on the base according to the international standard to form light-absorbing zones capable of absorbing light. More specifically, as shown in Figure 3, it is known that, in a general bar code (a), white-based regular paper and the like are used as a base (b), a plurality of light-absorbing zones (c) having a predetermined interval and a required size are printed thereon using a printing ink of black or dark blue, which is a light-absorbing color, leaving reflecting areas (d) having a predetermined size at both sides, and said bar code enables an optical reading of a product's

country, producer, type, standard and the like by being scanned on its surface using a hand scanner and the like.

[0003]

Therefore, when applying the bar code to a product's container, itself made of glass, plastic and the like having light-transmitting property, if the general bar code is directly printed on a surface of the container, light is transmitted also through a base part, which should be a reflecting zone, and therefore, it is impossible to read the bar code. In such a case, conventionally, a given bar code is printed on a rectangular and reflective regular paper having a required length and the piece of paper is attached onto a surface of a light-transmitting container, or a rectangular base having a reflecting color is printed on a suitable surface area of a product's container in advance and a general bar code is further printed thereon.

[0004]

[Problem to be Solved by the Invention]

As described above, according to a conventional technique, when utilizing a bar code for a container whose main body is made of a light-transmitting material, a general bar code cannot be printed on a surface of the container as it is for the aforementioned reason. Therefore, time and effort are required, for example, for attaching the bar code printed on a sheet on the container, or for printing the bar code using an overprinting method. Moreover, since a piece of paper or a colored base is exposed on a surface of a product, the conventional technique is not preferred in view of appearance and design, in particular, for a glass bottle, a plastic container and the like (including a container -the same below) containing liquid such as beverage and the like, whose design is much important.

[0005]

[Means for Solving Problem]

Considering such current conditions, the present inventor has diligently studied in order to develop a method for effectively using a bar code for a container made of a light-transmitting material such as glass, plastic and the like as described above, and solved the conventional problem using a means wherein the above-described light-absorbing zones of the general bar code, which are usually printed on a regular paper or a base having a reflecting color, and the reflecting zones, are inverted and printed directly on the surface of the light-transmitting container.

[0006]

Further, in another means, the above-described inverted bar code is printed on a surface of a colorless or transparent film in advance and the film is attached onto the suitable surface of the light-transmitting container.

[0007]

That is to say, the present invention provides a method wherein a bar code, in which a reflecting area of at least 5 mm. in length is provided outside the first and the last light-absorbing zones of a general bar code designed according to a given standard, and light-absorbing zones and reflecting zones of the bar code are inverted except for the reflecting areas, is directly printed on a surface of a light-transmitting container or a transparent film.

[0008]

[Effects]

In the constitution of the present invention, the bar code uses a surface of a light-transmitting material as a base. By printing the general bar code inversely, the printed lines, which were originally the light-absorbing zones, become base

color, and the parts, which were not printed (originally the base color), are printed to become the light-reflecting zones. Therefore, the bar code of the present invention has the remarkable effect in that it can be optically identified as it is using a scanner in the same way as the conventional method. Moreover, by providing the reflecting areas having a given length at both side edges of the inverted bar code, a readable starting position and a readable finishing position can be accurately identified by the scanner.

[0009]

[Examples]

Hereinafter, the constitution of the present invention will be described in more detail according to the Examples shown in the drawings. Figure 1 shows an example wherein the inverted bar code of the present invention is applied to a black glass container containing a certain liquid beverage (white parts and black parts are reversed in the figure because of the necessity of the clearness thereof). Number 1 indicates a body of a container. Number 2 indicates an inverted bar code wherein a general bar code is printed inversely on a suitable surface area of the container. Number 3 indicates reflecting zones colored on a base. Number 4 indicates light-absorbing zones wherein the base is exposed (not printed). Number 5 indicates reflecting areas of at least 5 mm in length, which are provided outside and in contact with the reflecting zones 3 at both side edges of the inverted bar code 2.

[0010]

Figure 2 shows another embodiment of the present invention, wherein an inverted bar code 2' similar to the aforementioned example and reflecting areas 3' having a given length provided at both side edges of the inverted bar code, are printed on a surface of a generally colorless and

transparent film 1' using a reflective ink, and the film 1' is attached onto a suitable position of the light-transmitting container, or fitted with the container as a tube-like film which is elongated in advance and heated to provide a shrink packaging.

[0011]

In this case, in Figure 3, white parts of the exemplified general bar code (a) are subjected to color printing to become the reflecting zones 3, and to the contrary, black-lined parts are not printed to become the light-absorbing zones 4.

[0012]

The inverted bar code 2' of the present invention can be applied not only to glass containers as exemplified above, but also to any type of container made of a light-transmitting material such as plastic and the like, and is not at all affected by clearness/darkness of a color of a container or a color of a product contained therein.

[0013]

Further, according to the present invention, a color of the lines of the inverted bar code printed on a container or a transparent film can be freely selected from various colors as long as reflective ink is used.

[0014]

When the reflecting areas 5 or 5', which are provided at both sides of the inverted bar code 2 or 2' of the present invention, have the length of 3 mm or less, the accuracy of reading by a scanner is decreased. Therefore, the length thereof is preferably about 5 mm in view of the safety factor.

[0015]

[Effect of the Invention]

As described above, in the present invention, when a bar code is intended to be directly printed on a container or a bag

of a product made of a light-transmitting material such as glass, plastic and the like or to be separately printed on a transparent film, a general bar code is inverted and the reflecting areas are provided at both sides of the inverted bar code. By employing the inverted bar code, time and effort spent in conventionally printing the bar code on paper to be attached to the surface of the container, overprinting the general bar code on a base printed in advance or the like, can be omitted. Moreover, this novel invention is very useful for improving the appearance and design of the product.

[0016]

The color of the inverted bar code of the present invention to be printed is not limited to black, dark blue and the like as the conventional bar code. As long as reflective ink is used in printing, any color such as gold, silver, red, yellow and the like can be selected. Further, any form of bar code can be obtained corresponding to a form and a design of a product. For example, the form of the entire bar code can be made a strip-like shape by significantly shortening the bars. Therefore, the present invention is significantly effective for improving the commercial value.

[0017]

Moreover, when the inverted bar code printed on a transparent film is used for a container, the appearance of the container is advantageously not different from that in the case of direct printing.

[Brief Description of Drawing]

[Figure 1] Figure 1 shows a rear view of a light-transmitting glass container indicating an example of the present invention.

[Figure 2] Figure 2 shows a plan view exemplifying a bar code printed on a transparent film (another example of the present invention).

[Figure 3] Figure 3 is a plan view exemplifying a conventional bar code printed on a piece of paper.

[Explanations of Letters or Numerals]

- 1 ..... a glass container
- 1' ..... a transparent film
- 2, 2' ..... inverted bar codes
- 3, 3' ..... reflecting zones
- 4, 4' ..... light-absorbing zones
- 5, 5' ..... reflecting areas

\* NOTICES \*

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

**DETAILED DESCRIPTION**

[Detailed Description of the Invention]

[0001] [Industrial Application] This invention is used for the container of the goods with which that subject consists of a translucency ingredient like glass or a plastic about the so-called bar code which enabled it to read the classification and specification of goods optically, and is especially effective.

[0002] [Description of the Prior Art] In recent years, the bar code widely used for optical discernment of various goods made the substrate the reflected color of light, on the substrate, printed much parallel lines of black or navy blue in conformity with the international standard, and formed the light absorption band which can absorb light. When this is described in more detail, as illustrated to drawing 3, usual bar code (b) the regular paper of a white system etc. — substrate (\*\*) — carrying out — reflective region (\*\*) fixed on both sides — by leaving - (\*\*) and printing predetermined spacing and many light absorption bands (Ha) of a necessary size using the printing ink of the black which is a light absorption color, or navy blue. The thing which enabled it to read optically \*\* [specification / - producer classified by country, a form, / lot number] is known by scanning the front face by a hand scanner etc.

[0003] Therefore, when the container of goods itself tended to apply the bar code to glass and the container made from plastics which have translucency, even if it printed the usual bar code directly on the front face, the reading was impossible on the relation whose substrate part which should be the reflexogenic zone also penetrates light. Then, a means to pile up, print and carry out the usual bar code conventionally after printing the predetermined bar code in in the paper [rectangular / reflexivity common] it has necessary length, sticking this piece of paper on the front face of a translucency container or printing the substrate of a reflected color in the shape of a rectangle beforehand in the suitable location of a goods container was used.

[0004] Problem(s) to be Solved by the Invention] As mentioned above, when a subject uses a bar code to the container which consists of a translucency ingredient according to the Prior art Since it not only required the time and effort of having stuck the bar code printed on another sheet, or carrying out heavy printing, but the bar code usual by the aforementioned reason was not able to be printed to a container side as it was and a piece of paper and a substrate color are exposed to the front face of goods, to the glass bottle or plastic envelope (= containing a container – below the same) of the design serious consideration which holds specially liquids, such as a drink, an appearance and design top was not desirable.

[0005] Means for Solving the Problem] As a result of coming research in piles wholeheartedly in order to develop the effective directions of a bar code about the container which consists of a translucency ingredient like glass or plastics which this invention person mentioned above in view of such the actual condition, the conventional technical problem used to be solved with a means to reverse the usual above-mentioned light absorption band and usual reflexogenic zone of a bar code which are generally printed on the regular paper of a reflected color, or a substrate as it is, and to print directly on the front face of a translucency container.

[0006] Moreover, the bar code which carried out [above-mentioned] reversal was beforehand printed on the film of colorlessness or transparency, and a means to stick this on the proper front face of a translucency container was also used.

[0007] That is, the reflective region of at least 5mm length is established in the outside of the light absorption band of the beginning of the usual bar code, and the last designed according to fixed specification, it is in the condition of having reversed the light absorption band and reflexogenic zone of the above-mentioned bar code except this reflective region, and how to print directly on the front face of a

translucency container or a bright film is offered.

[0008]

[Function] Although a translucency ingredient side serves as a substrate, by carrying out reversal printing of the usual bar code, the printing line which was originally a light absorption band serves as a ground color, the part non-printed (ground color) is printed, and the bar code of this invention concerning the configuration of description serves as reflexogenic zone, and has with a scanner the operation according to rank that optical discernment is possible as it is, as before. Moreover, operation that reading initiation and the termination location of a scanner can identify correctly by having established the reflective region of fixed length in the both-sides edge of a reversal bar code is acquired.

[0009]

[Example] When the configuration of this invention is hereafter explained further in full detail according to the example shown in a drawing, drawing 1 the reversal bar code of this invention The example applied to the black container made from glass which holds a certain liquid drink It is (however, on the need of making it clear, displayed in white the drawing and drawing created it). The reversal bar code which 1 reversed the usual bar code in the body of a container, and the location where this container front face is suitable for 2, and was printed, The reflexogenic zone by which 3 was colored on the substrate, and 4 are the light absorption band out of which it cheated, and a reflective region where further 5 has die length of at least 5mm prepared in the method of outside in contact with the reflexogenic zone 3 of the both-sides edge of the reversal bar code 2 exposure (printing [ no ]) about a substrate.

[0010] Drawing 2 is what showed other embodiments of this invention. Moreover, the reversal bar code 2' same with the whole surface of usually transparent and colorless film 1' as said example, Reflective region 3' of fixed length prepared in the both-sides edge is printed in reflexivity ink, this is stuck on the suitable location of a translucency container, or it attaches, heats and carries out shrink packaging to a container, using above-mentioned bright film 1' as the tubed film extended beforehand.

[0011] In this case, coloring printing is carried out, the white part of illustrated usual bar code (b) serves as reflexogenic zone 3, on the contrary, a linea-nigra part is no printing and drawing 3 serves as the light absorption band 4.

[0012] In addition, reversal bar code 2' of this invention is not restricted to the container made from glass of an upper example, but can be altogether applied to the container which consists of a translucency ingredient like plastics, and it is completely unrelated to the light and darkness of the color of a container, or the color of a hold object.

[0013] Furthermore, in this invention, the color of the line of the reversal bar code printed by a container or the bright film is reflexible ink, and many colors can choose it from the inside freely.

[0014] In addition, since a reading precision according that the die length is 3mm or less to a scanner falls, as for the reflective region 5-5, or 5' and 5' given to the both sides of reversal bar code 2 and 2' of above-mentioned this invention, it is desirable to see a safety factor and to consider as 5mm order.

[0015]

[Effect of the Invention] [ whether as stated above, this invention prints a bar code directly to the container or \*\*\*\* of the goods which consist of translucency ingredients, such as glass and plastics, and ] By or the hing for which in printing to a bright film separately a reflective region is established in these bar code both sides, and the usual bar code is reversed as [ \*\*\*\* ] [0016] which is new invention very useful when sticking on a container side the bar code paper printed like before or raising design nature to the \*\*\*\* list of goods time and effort's, such as having performed substrate printing upwards beforehand, and piling up, printing and carrying out the usual bar code's, being not only ommissible, but Moreover, black \*\*\*\* is not what is imited to navy blue etc. like the bar code of the former [ color / to which the reversal bar code of this invention is in charge of the printing ]. If it is reflexible ink, since the bar code united with the configuration and the design of goods is obtained, it is very effective to begin gold and silver, to be able to choose the color of arbitration, such as red and yellow, to shorten the die length of a bar enough further, and to make the whole into the shape of a strip of paper long and slender etc., when measuring improvement in commodity value.

[0017] Furthermore, some which printed the reversal bar code to the bright film have what was printed directly, an exterior, and the description that the result which does not change at all is obtained, to the various containers which use this.

[translation done.]